



Emulex Driver for HP-UX Download Manual

Version 4.20.04

Table of Contents

- [Compatibility](#)
- [Prerequisites](#)
- [Things to Know Before You Download](#)
- [Changes and Corrections](#)
- [Known Issues](#)
- [Cautions and Warnings](#)
- [Files Included in this Release](#)
- [Important Files](#)

Driver Information

Compatibility

- Emulex Fibre Channel adapters LP10000DC and LP10000
- Emulex Fibre Channel adapters LP9802DC and LP9802
- Emulex Fibre Channel adapters LP9002DC, LP9002L and LP9000 (minimum firmware revision 3.81a1)
- Emulex Fibre Channel adapters LP8000 and LP8000DC
- Emulex Fibre Channel adapter LP7000E (minimum firmware revision 3.21a0)
- If your HBA has a Dragonfly chip version 2.00 or greater, use firmware version 3.90a7.
- If your HBA has a Dragonfly chip below version 2.00, use firmware version 3.30a7.
- Hewlett Packard PA_RISC platforms:
 - rp2400, 5400, 7400 and 8400 series
 - Superdome
 - Testing has also been performed with HP9000 A400, A500, B2000, L and N class servers as well as C240 and C3600 workstations (Note: HP 9000 A180 is not supported)

Prerequisites

- HP-UX 10.2 (32-bit OS), HP-UX 11.0 (64-bit OS), HP-UX 11i (32-bit or 64-bit)
- Patches: HP-UX 10.2, PHKL-22689 WSIO SCSI Cumulative Patch
HP-UX 11.0, PHKL-21989 SCSI IO Subsystem Cumulative Patch
HP-UX 11.0 was tested with the March 2003 patch bundle
HP-UX 11i was tested with the September 2003 patch bundle
- 64 MB system RAM
- Video driver set to 640 x 480 mode (recommended)

- Installed Fibre Channel host bus adapter
- For dual channel host bus adapters only: a version of firmware with boot code must be present on the adapter before installing in an HP-UX 11i (11.11) system.

Using the UNIX-based Utility

1. Enter the appropriate command to start the lputil utility:

For AIX enter: /usr/lpp/diagnostics/lputil
For HP-UX enter: /opt/lpfc/bin/lputil
For Linux enter: /usr/sbin/lpfc/lputil
For Solaris enter: /usr/sbin/lpfc/lputil

The main menu is displayed.

```
LightPulse Common Utility version 1.1 (3/17/99)
Copyright (c) 1999, Emulex Network Systems, Inc.

Emulex Fibre Channel Host Adapters Detected: 1
Host Adapter 0 is an LP7K (Ready Mode)

MAIN MENU

1. List Adapters
2. Adapter Information
3. Firmware Maintenance
4. Reset Adapter

0. Exit

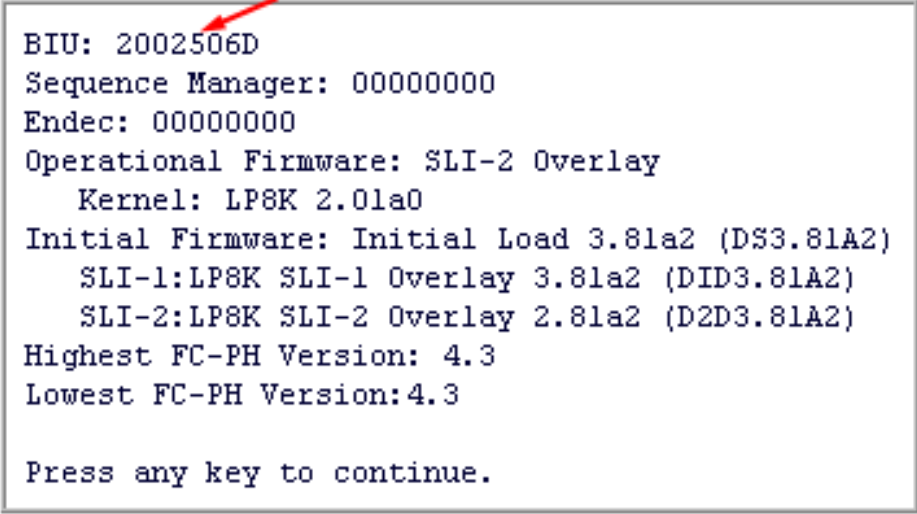
Enter Choice =>
```

2. Select 2, Adapter Information. The Adapter Information Menu is displayed.

```
1. BIU PCI Configuration Parameters
2. Adapter Revision Levels
3. Wakeup Parameters
4. IEEE Address
5. Loop Map
6. Status & Counters
7. Link Status
8. Configuration Parameters

0. Return to Main Menu.
```

3. Select 2, Adapter Revision Levels. If there are multiple host adapters, a list is displayed and you need to select an adapter. The following type of information is displayed for the host bus adapter (this is an example only).



```
BIU: 2002506D
Sequence Manager: 00000000
Endec: 00000000
Operational Firmware: SLI-2 Overlay
      Kernel: LP8K 2.01a0
Initial Firmware: Initial Load 3.81a2 (DS3.81A2)
      SLI-1:LP8K SLI-1 Overlay 3.81a2 (DID3.81A2)
      SLI-2:LP8K SLI-2 Overlay 2.81a2 (D2D3.81A2)
Highest FC-PH Version: 4.3
Lowest FC-PH Version:4.3

Press any key to continue.
```

Version 1 shows a chipset revision that contains 210 near the end of the BIU number.

Version 2 shows a chipset revision that contains 250 near the end of the BIU number.

Things to Know Before You Download

- Before you download, create a temporary directory for the driver kit.
- Before you update your driver, make backup copies of critical files.
- For HP-UX version 11.11, when installing the HP-UX driver and updating its firmware on a dual channel adapter, you must use a firmware image containing boot code.

Changes and Corrections

- 'isoscan' was enhanced to better detect targets.
- The driver software now supports analyzing trace data from a crash dump.
- The lpfc script in /sbin/init.d executes with the correct permissions.
- Corrected a misspelling in adapCfg.h.

Known Issues

The adapCfg.h file

You may need to modify the adapCfg.h file after installing the driver. You might also need to modify the file if the hardware configuration changes, e.g., by adding additional disk drives to the Fibre Channel interface.

adapCfg.h - Configuration header file specifying tunable parameters for LightPulse adapters attached to the host machine; this file is located in /opt/lpfc/conf.

Configuring this file is discussed in greater detail in the Configuration manual.

Discovering Disk Drives

To list all the SCSI devices discovered by the lpfc driver, or to list newly attached devices, enter:

```
ioscan -fkC  
disk
```

Sometimes, the driver recognizes disk drives at boot time but you won't be able to use those drives because special file entries for them do not exist. To create these special files, run:

```
insf -  
e
```

ioscan on 64-bit HP-UX 11i

If the ioscan does not report the software state correctly for lpfd (Pseudo HBA) and devices attached to it, the I/Os are still sent to those devices. You may be required to run ioscan multiple times to report the software state correctly.

FCP - Different SCSI Target IDs on Different Hosts

A Fibre Channel target is assigned its D_ID at loop initialization time; the SCSI target ID for that target is assigned by the device driver when the device is first discovered. It is possible for the D_ID to change between one loop initialization and the next. Every time a system boots or a target is added to, or removed from, the Fibre Channel, the loop will be re-initialized. After a system has booted, it will maintain a constant view of the same target ID because the driver software remaps

the SCSI target ID to the new D_ID on the fly. However, a second system may use a different SCSI target ID for that target. Thus, if you are seeking to work with the same target across multiple hosts you must be prepared to encounter the situation where the same Fibre Channel target is known by different SCSI target IDs. The persistent binding feature of this device driver can be used to maintain a consistent target ID on all systems.

Drive light turns off

On some disk drives with down level firmware, the drive light will turn off. Typically, the drive light does not turn on again under its own power. In some situations, however, the light will turn on when a command to it times out and the driver tries to abort the command. It may also turn on at the next loop event. Contact the drive manufacturer for new firmware to fix the problem.

LIP type F8

Some disk drive firmware does not recover from a LIP type F8 in the way expected by other Fibre Channel devices; the result can be a loop full of devices that are confused. Usually, the best that can be done for recovering from this situation is to reboot all the hosts involved and power cycle all the disk drives involved.

Unfortunately, it may be difficult to realize that an F8 LIP has happened: subsequent loop events may obscure the relevant log messages on the console or in the system log. The Emulex Digital Hub will bypass devices sending LIP F8, and keep your loop up and running.

Cautions and Warnings

- **CAUTION:** Failure to update the firmware with an image containing boot code will make the dual channel adapter unavailable after a system reboot.
- For HP-UX version 11.11, when installing the HP-UX driver and updating its firmware on a dual channel adapter, you must use a firmware image containing boot code.

Files Included in this Release

This driver kit includes the following files.

File Name	Description
catalog/INDEX	SWPackage-generated files
catalog/dfiles/INDEX	SWPackage-generated files
catalog/dfiles/INFO	SWPackage-generated files
catalog/LPFC/pfiles/INDEX	SWPackage-generated files
catalog/LPFC/pfiles/INFO	SWPackage-generated files
catalog/LPFC/pfiles/README	File that contains Emulex Technical Support information
catalog/LPFC/pfiles/checkremove	Configuration/script file
catalog/LPFC/driver/INDEX	SWPackage-generated files
catalog/LPFC/driver/INFO	SWPackage-generated files
catalog/LPFC/driver/configure	Configuration file for main driver
catalog/LPFC/driver/postinstall	Configuration/script file
catalog/LPFC/driver/postremove	Configuration/script file
catalog/LPFC/driver/preremove	Configuration/script file
catalog/LPFC/diagnostics/INDEX	SWPackage-generated file
catalog/LPFC/diagnostics/INFO	SWPackage-generated file
catalog/LPFC/diagnostics/configure	Diagnostics script file
catalog/LPFC/diagnostics/postremove	Diagnostics script file

LPFC/driver/opt/lpfc/conf/adapCfg.h	Driver configuration file
LPFC/driver/sbin/init.d/lpfc	Start up script
LPFC/driver/usr/conf/lib/lpfc.a	Device driver library file
LPFC/driver/usr/conf/master.d/lpfc	Device driver master file
LPFC/driver/usr/conf/space.h.d/lpfc.h	Device driver header file
LPFC/driver/usr/sam/lib/kc/drivers.lpf.tx	Used by SAM
LPFC/driver/usr/sam/lib/kc/params.lpf.tx	Used by SAM
LPFC/diagnostics/opt/lpfc/bin/dfc	Diagnostic utility
LPFC/diagnostics/opt/lpfc/bin/lputil	Diagnostic utility for adapter maintenance
LPFC/diagnostics/usr/lib/libdfc32.a	Driver diagnostics interface library for 32-bit. Note: The last 3 characters in this file name vary depending upon whether the driver is for a 32-bit or 64-bit operating system (the file name for 64-bit is libdfc64.a)

Important Files

The following file may need to be modified after installing the driver or if your hardware configuration changes, such as by adding additional disk drives to the Fibre Channel interface.

adapCfg.h

Configuration header file specifying tunable parameters for all LightPulse adapters attached to the host machine; this file is located in /opt/lpfc/conf.

Verifying the Dragonfly Chip Version

There are three methods for determining the Dragonfly chip version: Looking at the Host Bus Adapter, running the DOS utility, or running the UNIX-based utility.

Looking at the Host Bus Adapter

The Dragonfly version number can be found on the top of the large chip, usually after the term "DRAGONFLY" or "DFLY".

Running the DOS Utility

1. Boot up the computer in DOS.
2. Enter this command to start the lp6dutil program.

```
c:\>lp6dutil
```

The lp6dutil program runs preliminary tests on all host adapters.

3. Press the Return or Enter key until the main menu is displayed. The lp6dutil utility resets all host adapters and resource information for all host bus adapters is displayed.

Note Press 0 to go back to the previous screen.

```
1 - Test Host Adapters
2 - Modify Test Options
3 - Restart Host Adapters
4 - Input/Output
5 - Maintenance
6 - Show Host Adapters Info
7 - Quit
```

4. Select 6, Show Host Adapter Info.

The Option menu is displayed.

1 - BIU PCI Configuration Parameters	5 - Service Parameters
2 - Host Adapter Info and Status	6 - Status/Counters Info
3 - Adapter Revision Levels	7 - Link Status
4 - Display Configuration Data	8 - Link Attention

5. Select 3, Adapter Revision Levels . If there are multiple host adapters, specify a list of numbers from 1 – 3 separated by spaces, or use a '-' between two numbers to specify a range of host adapters. The following type of information is displayed for the host bus adapter (this is an example only).

```
Chipset Revision Levels:
DragonFly Revision = 0x1002106D

Firmware Revision Levels:
Current Operational Firmware = Initial Operational Firmware
Kernel Revision = 1.00
Initial Operational Firmware Revision = Initial Load 1.01a0
(QS1.01A0 )
SLI-1 Revision = SLI-1 Overlay 1.01a0 (Q1F1.01A0 )
SLI-2 Revision = SLI-2 Overlay 1.01a0 (Q2F1.01A0 )
```



Version 1 shows a chipset revision that contains 210 near the end of the adapter's hex number (DragonFly Revision number).

Version 2 shows a chipset revision that contains 250 near the end of the adapter's hex number.

Using the UNIX-based Utility

1. Enter the appropriate command to start the lputil utility:

```
For AIX enter:    /usr/lpp/diagnostics/lputil
For HP-UX enter: /opt/lpfc/bin/lputil
For Linux enter:  /usr/sbin/lpfc/lputil
For Solaris PCI bus enter: /usr/sbin/lpfc/lputil
```

The main menu is displayed.

```
LightPulse Common Utility version 1.1 (3/17/99)
Copyright (c) 1999, Emulex Network Systems, Inc.

Emulex Fibre Channel Host Adapters Detected: 1
Host Adapter 0 is an LP7K (Ready Mode)

MAIN MENU

1. List Adapters
2. Adapter Information
3. Firmware Maintenance
4. Reset Adapter

0. Exit

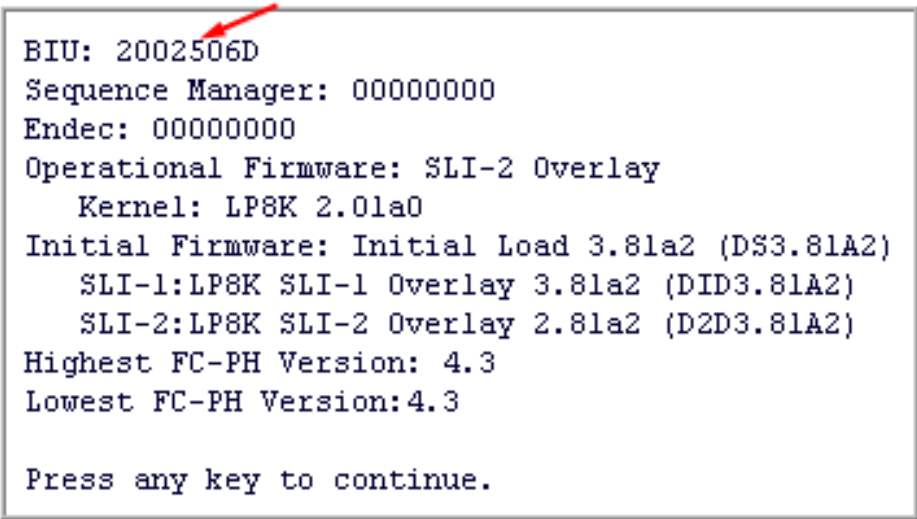
Enter Choice =>
```

2. Select 2, Adapter Information. The Adapter Information Menu is displayed.

```
1. BIU PCI Configuration Parameters
2. Adapter Revision Levels
3. Wakeup Parameters
4. IEEE Address
5. Loop Map
6. Status & Counters
7. Link Status
8. Configuration Parameters

0. Return to Main Menu.
```

3. Select 2, Adapter Revision Levels. If there are multiple host adapters, a list is displayed and you need to select an adapter. The following type of information is displayed for the host bus adapter (this is an example only).



```
BIU: 2002506D
Sequence Manager: 00000000
Endec: 00000000
Operational Firmware: SLI-2 Overlay
      Kernel: LP8K 2.01a0
Initial Firmware: Initial Load 3.81a2 (DS3.81A2)
      SLI-1:LP8K SLI-1 Overlay 3.81a2 (DID3.81A2)
      SLI-2:LP8K SLI-2 Overlay 2.81a2 (D2D3.81A2)
Highest FC-PH Version: 4.3
Lowest FC-PH Version:4.3

Press any key to continue.
```

Version 1 shows a chipset revision that contains 210 near the end of the BIU number.

Version 2 shows a chipset revision that contains 250 near the end of the BIU number.



Emulex Driver for HP-UX Installation Manual

Version 4.20.04

Table of Contents

- [Compatibility](#)
- [Prerequisites](#)
- [Installation](#)
 - [Install the Driver](#)
 - [Remove Existing Driver](#)

Driver Information

Compatibility

- Emulex Fibre Channel adapters LP10000DC and LP10000
- Emulex Fibre Channel adapters LP9802DC and LP9802
- Emulex Fibre Channel adapters LP9002DC, LP9002L and LP9000 (minimum firmware revision 3.81a1)
- Emulex Fibre Channel adapters LP8000 and LP8000DC
- Emulex Fibre Channel adapter LP7000E (minimum firmware revision 3.21a0)
- If your HBA has a Dragonfly chip version 2.00 or greater, use firmware version 3.90a7.
- If your HBA has a Dragonfly chip below version 2.00, use firmware version 3.30a7.
- Hewlett Packard PA_RISC platforms:
 - rp2400, 5400, 7400 and 8400 series
 - Superdome
 - Testing has also been performed with HP9000 A400, A500, B2000, L and N class servers as well as C240 and C3600 workstations (Note: HP 9000 A180 is not supported)

Prerequisites

- HP-UX 10.2 (32-bit OS), HP-UX 11.0 (64-bit OS), HP-UX 11i (32-bit or 64-bit)
- Patches: HP-UX 10.2, PHKL-22689 WSIO SCSI Cumulative Patch
HP-UX 11.0, PHKL-21989 SCSI IO Subsystem Cumulative Patch
HP-UX 11.0 was tested with the March 2003 patch bundle
HP-UX 11i was tested with the September 2003 patch bundle
- 64 MB system RAM
- Video driver set to 640 x 480 mode (recommended)

- Installed Fibre Channel host bus adapter
- For dual channel host bus adapters only: a version of firmware with boot code must be present on the adapter before installing in an HP-UX 11i (11.11) system.

Using the UNIX-based Utility

1. Enter the appropriate command to start the lputil utility:

For AIX enter: /usr/lpp/diagnostics/lputil
For HP-UX enter: /opt/lpfc/bin/lputil
For Linux enter: /usr/sbin/lpfc/lputil
For Solaris enter: /usr/sbin/lpfc/lputil

The main menu is displayed.

```
LightPulse Common Utility version 1.1 (3/17/99)
Copyright (c) 1999, Emulex Network Systems, Inc.

Emulex Fibre Channel Host Adapters Detected: 1
Host Adapter 0 is an LP7K (Ready Mode)

MAIN MENU

1. List Adapters
2. Adapter Information
3. Firmware Maintenance
4. Reset Adapter

0. Exit

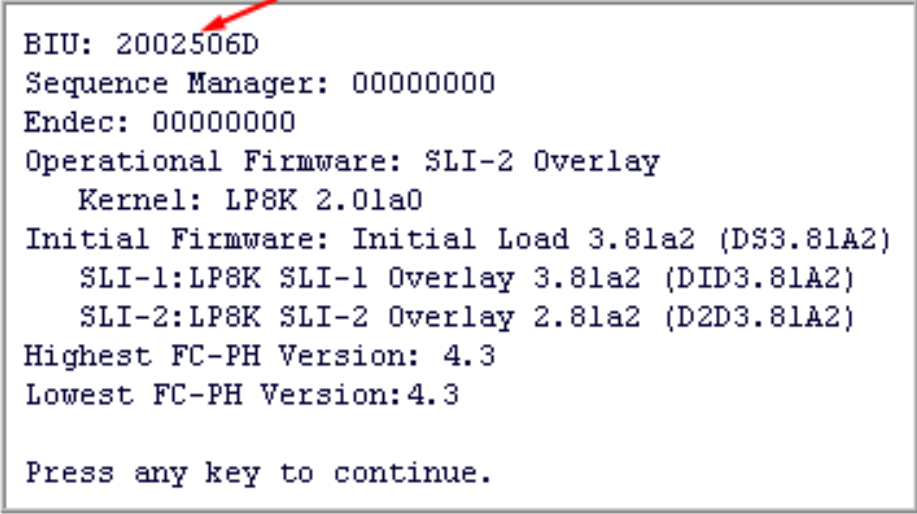
Enter Choice =>
```

2. Select 2, Adapter Information. The Adapter Information Menu is displayed.

```
1. BIU PCI Configuration Parameters
2. Adapter Revision Levels
3. Wakeup Parameters
4. IEEE Address
5. Loop Map
6. Status & Counters
7. Link Status
8. Configuration Parameters

0. Return to Main Menu.
```

3. Select 2, Adapter Revision Levels. If there are multiple host adapters, a list is displayed and you need to select an adapter. The following type of information is displayed for the host bus adapter (this is an example only).



```
BIU: 2002506D
Sequence Manager: 00000000
Endec: 00000000
Operational Firmware: SLI-2 Overlay
Kernel: LP8K 2.01a0
Initial Firmware: Initial Load 3.81a2 (DS3.81A2)
SLI-1:LP8K SLI-1 Overlay 3.81a2 (DID3.81A2)
SLI-2:LP8K SLI-2 Overlay 2.81a2 (D2D3.81A2)
Highest FC-PH Version: 4.3
Lowest FC-PH Version:4.3

Press any key to continue.
```

Version 1 shows a chipset revision that contains 210 near the end of the BIU number.

Version 2 shows a chipset revision that contains 250 near the end of the BIU number.

Install the Driver

To install the driver and boot the system, follow these instructions. While it is possible to install lpfc onto one or more clients from a server, that procedure is not covered here; refer to your HP-UX system administration documentation for that procedure. If a prior version of the lpfc device driver is already installed on the system, you must first remove the old driver.

Note A new adapCfg.h file is copied into the opt/lpfc/conf/ directory during installation. If this driver was previously installed and you have configuration changes you wish to save, copy the original opt/lpfc/conf/adapCfg.h file to a safe place and transfer any edits from the old file to the new file after installation.

1. Login as or su to root.
2. Load the depot file from your distribution medium into a directory, referred to here as <where-you-put-it>. The depot file name is lpfc.depot.
3. At the shell prompt, type:

```
cd <where-you-put-it>
```

```
swinstall -s `pwd`/lpfc.depot -x autoreboot=true LPFC
```

The system will reboot automatically, and the lpfc driver will be included in the HP-UX kernel.

4. **Before** you proceed, decide whether you must change any driver configuration parameter, beyond the defaults established by the installation process.

5. To modify the default driver configuration parameter, rebuild Kernel and Reboot the machine using the following commands:

```
/usr/sbin/mk_kernel -o /stand/vmunix
```

```
sync
```

```
reboot or shutdown -r
```

Remove the Emulex Ipfc Device Driver

Driver Removal (swremove)

The driver can be removed by using swremove. Run the following command:

```
swremove -x autoreboot=true LPFC
```

The system will automatically reboot after the driver is removed.

For further information on installing and removing drivers, consult the HP-UX system administration documentation and the swinstall(1M) and swremove(1M) manual pages.



Emulex Driver for HP-UX Configuration Manual

Version 4.20.04

Table of Contents

- [Introduction](#)
- [Change Configuration Parameters](#)
- [Set Up Persistent Binding and LUN Blocking](#)
- [View IOSCAN Report](#)
- [Understand Device Numbering](#)
- [View adapCfg.h File Parameters](#)
- [List Adapters](#)
- [View Adapter Information](#)
- [Update Firmware](#)
- [Install Boot Code](#)
- [Reset Adapter](#)
- [Download PCI Configuration](#)

Introduction

You can use either of the following methods to configure the driver for HP-UX:

- Use HP's System Administration Tool (SAM) to make changes globally.
- Use a text editor to make changes per adapter. The adapCfg.h configuration file is a C header file and is located in the /opt/lpfc/conf directory. The adaCfg.h file provides examples of code to modify driver parameters.

Change Configuration Parameters Per Adapter

1. Using a text editor, access the adapCfg.h configuration file by entering:

```
cd /opt/lpfc/
conf
```

2. Locate the following section of code in the adapCfg.h configuration file.

```
1  /* this section is required to change individual adapter parameters */
2
3  AdapCfgOverride_t lpfcOver_#[] = {
4      {
5          PARAMETER, SETTING
6          CFG_TOPOLOGY, TOPOLOGY_MODE_LOOP /* enter all parameters to be customized */
7      }, {
8          -1, -1 /* final entry: REQUIRED */
9      }
10 };
```

3. Replace the variable # (on line 3) with the adapter instance number.
4. Replace the variable PARAMETER, SETTING with the parameter and setting you want. See the config structures table for more information on each parameter setting.
5. Locate the following lines of code in the adapCfg.h file and delete or comment these lines and all example rows in between:

```
#ifdef
ThisIsJustAnExample
```

(Approximately line #133)

```
#endif /* just an example
*/
```

(second to last line)

Note Comment out or delete all rows that provide example information. Once you delete the above lines of code, the system will consider all code when compiling.

6. Set the Per-Adapter Configuration Structure. Locate the following lines of code and modify the entry for adapters that have been configured by removing the 0 and comment tags. In the sample, only adapters 0 and 1 have configuration changes.

```

* per-adapter config structures
*/
AdapCfg_t *lpfcAdapterCfg[16] = {
/* 0 */    &lpfcCfg_0,
/* 1 */    &lpfcCfg_1,
/* 2 */    0, /* &lpfcCfg_2 */
/* 3 */    0, /* &lpfcCfg_3 */
/* 4 */    0, /* &lpfcCfg_4 */

```

[Click to view complete table](#)

7. Save the adapCfg.h file. We recommended that you make a copy of the modified adapCfg.h file and keep it as a backup. If a new driver is installed, this file will be overwritten and all parameters will revert back to default.
8. Rebuild the kernel by entering:

```

# /usr/sbin/mk_kernel -s /stand/system -o /stand/vmunix
# sync
# reboot

```

9. Reboot the system.
10. Run ioscan to discover hardware, view bindings and view LUNs. Enter:

```

# ioscan -fnC
disk

```

The IOSCAN report displays information such as the hardware path, driver, software state, hardware type and description device.

adapCfg.h File

Click on a parameter to view a detailed description.

Cfg Parameter	Default	Min	Max	Comments
CFG_ACK0	0	0	1	Use ACK0 for Class 2
CFG_AUTOMAP	1	0	3	Automatically assigns SCSI IDs to FCP targets detected.
CFG_CHECK_COND_ERR	0	boolean 0=false, 1=true		Treat certain FCP Check conditions as FCP RSP errors.
CFG_DELAY_RSP_ERR	0	boolean 0=false, 1=true		Treat FCP RSP errs like no-device-delay.
CFG_DQFULL_THROTTLE	1	boolean 0=false, 1=true		Decrement LUN throttle on queue fulls.
CFG_DQFULL_THROTTLE_UP_TIME	1	0	30	(seconds) Number of seconds to start increment the current Queue depth.
CFG_DQFULL_THROTTLE_UP_INC	1	0	128	Number of Queue depth to increment.
CFG_FCP_CLASS	3	2	3	Fibre Channel class for FCP data transmission.
CFG_FCP_ON	1	boolean 0=false, 1=true		Turn on FCP.
CFG_LINK_SPEED	0	0	2	Set link speed: auto, 1G, 2G.
CFG_LINKDOWN_TMO	30	0	255	(seconds) How long driver waits before deciding FC link is down.
CFG_DFT_LUN_Q_DEPTH	30	1	128	Override default CFG_DFT_LUN_Q_DEPTH.
CFG_DFT_TGT_Q_DEPTH	0	0	10240	Override default CFG_DFT_TGT_Q_DEPTH.
CFG_NO_DEVICE_DELAY	1	0	30	Second delay to fail back an I/O.
CFG_HOLDIO	0	0	1	Hold I/O errors forever if device disappears.

CFG_NODEV_TMO	0	0	255	Seconds to hold I/O if device disappears.
CFG_NUM_BUFS	512	64	4,096	ELS and misc data buffers.
CFG_NUM_IOCBS	512	128	10,240	Adapter command/response structures.
CFG_SCAN_DOWN	2	0	2	Select method for A_PA to SCSI ID mapping.
CFG_TOPOLOGY	0	0	6	Fibre Channel link topology.
CFG_USE_ADISC	0	boolean 0=false, 1=true		Send ADISC instead of PLOGI for device discovery.
CFG_LOG_ONLY	1	0	1	Logging to log file only.
CFG_LOG_VERBOSE	0	0	0xff	(bit mask) Extra activity logging.
CFG_XMT_Q_SIZE	256	128	10.240	Transmit queue length of mbufs.
CFG_ZONE_RSCN	0	0	1	Check NameServer for RSCNs.

Set Up Persistent Binding and LUN Blocking

Persistent bindings are based on the target device's WWPN, WWNN or DID. This binding guarantees that target assignments are preserved between reboots

1. Using your text editor, access the adapCfg.h configuration file by entering:

```
cd opt/lpfc/
conf
```

2. Locate the following section of code in the adapCfg.h configuration file.

```
1  /* this section is required to change individual adapter parameters */
2
3  AdapCfgOverride_t lpfcOver_#[] = {
4      {
5          PARAMETER, SETTING
6          CFG_TOPOLOGY, TOPOLOGY_MODE_LOOP /* enter all parameters to be customized */
7      }, {
8          -1, -1 /* final entry: REQUIRED */
9      }
10 };
```

3. Replace the variable # (on line 3) with the adapter instance number.
4. Turn off automapping by replacing the variable PARAMETER, SETTING with CFG_AUTOMAP 0.

```
12 /* this section is only required if doing persistent bindings or LUN blocking */
13
14 char *lpfcBindMETHOD_#[] = { /* sets up binding by DID on adapter # */
15     "0000e1:lpfc#t14", /* binding of target 14 to DID 0000e1 */
16     "0000e2:lpfc#t13(0,2,4,6)", /* binding and LUN blocking of 0,2,4,6 */
17     "0000e4:lpfc#t12",
18     "0000e8:lpfc#t1",
19     0 /* final entry: REQUIRED */
20 };
```

5. Locate the above section of code in the adapCfg.h configuration file.
6. Replace the variable METHOD (on line 14) with either D_ID, WWPN or WWNN.
7. Replace the variable # (on line 14) with the adapter instance number.
8. Set bindings as follows:

```
NUMBER:
lpfcXtY
```

where **NUMBER** is a 6-digit representation of the target's device ID (DID), OR the 16-

digit representation of the target's WWPN or WWNN.

X is the driver instance number

Y is the target assignment.

Line 15 provides a sample.

Multiple entries must be separated by a comma, with the last entry terminated with 0 as shown on line 19.

9. Enter LUNs to be blocked in curly brackets separated by commas (see line 16).

NUMBER:lpfcXtY{#,#,#,#,
#}

where **NUMBER:**lpfcXtY sets the binding
are the LUNs to be blocked.

Line 16 provides a sample.

10. Summarize the adapter configuration (this is required). Locate the following section in the adapCfg.h file.

```

22  /* this section is required if any changes were made to the adapter */
23
24  AdapCfg_t lpfcCfg_# = {
25      lpfcOver_#,          /* adapt# parameters changed, leave 0 if no changes*/
26      0,                  /* no bindings made, if WWNN bindings lpfcWWNN_# */
27      0,                  /* no bindings made, if WWPN bindings lpfcWWPN_# */
28      lpfcBindDID_#       /* DID bindings - not 0 because bindings were made*/
29  };

```

11. Replace the variable # with the adapter instance number.
12. If changes were made to the adapter configuration parameters, line 25 should be changed from 0 to lpfcOver_#, as shown in line 25. This is to set the Per-Adapter Configuration Structure.
13. If persistent bindings were set up, lines 26, 27 or 28 reflect the change depending on whether the bindings were made based on the WWNN (line 26), WWPN (line 27) or D_ID (line 28). The above sample shows a binding that was made using the D_ID of the target.
14. Follow steps 5 through 10 of the Change Configuration Parameters procedure. These necessary steps include setting the per-adapter configuration structure, summarizing adapter information, saving the adapCfg.h file, rebuilding the kernel, rebooting the system and running ioscan.

Interpreting the IOSCAN Report

From the output of ioscan you can determine the hardware address and LUN. This sample output has been color coded to help with the explanation.

ext_bus	21	10/1/8/0			lpfc	CLAIMED	INTERFACE	PCI SerialBus	(10dff800)
ext_bus	35	10/1/8/0	0	21	lpfd	CLAIMED	INTERFACE	pseudo	HBA
ext_bus	36	10/1/8/0	0	22	lpfd	CLAIMED	INTERFACE	pseudo	HBA
target	27	10/1/8/0	0	22	0	0	tgt	CLAIMED	DEVICE
disk	34	10/1/8/0	0	22	0	0	sdisk	CLAIMED	DEVICE
								DEC	HSG80

Use the information in this table to help determine the SCSI ID and the actual LUN number.

Parent lpfc adapter					
SCSI ID Offset Values: 0 or 1. If 0, the SCSI ID is determined by adding 0 to the SCSI Index. If 1, the SCSI ID is determined by adding 256 to the SCSI Index.					
SCSI Index Use this number with the SCSI ID Offset to determine the SCSI ID					
LUN Offset Values: 0 or 1. If 0, add 0 to the LUN Index to determine the actual LUN number. If 1, add 128 to the LUN Index to determine the actual LUN number.					
Pseudo Target ID Used with the LUN Value to determine the LUN Index. $\text{LUN Index} = ((\text{Target ID}) \times 8) + (\text{LUN Value})$					
LUN Value Used with the Target ID to determine the LUN Index. $\text{LUN Index} = ((\text{Target ID}) \times 8) + (\text{LUN Value})$					
10/1/8/0	0	22	0	0	0

Examples

Hardware address: 10/1/5/0.0.22

SCSI ID = SCSI Offset + SCSI Index = 0 + 22 = 22

This hardware address results from binding 0000e8:lpfc0t22

Hardware address: 10/1/8/0.1.22

SCSI ID = SCSI Offset + SCSI Index = 255 + 22 = 277

This hardware address results from binding 0000e4:lpfc0t277

Hardware address: 10/1/8/0.1.22.0.2.7

SCSI ID = SCSI Offset + SCSI Index = 255 + 22 = 277

LUN = LUN Offset + ((Target ID)x8) + LUN Value

LUN = 0 + (2x8) + 7 = 23

Hardware address: 10/1/8/0.1.255.1.8.5

SCSI ID = SCSI Offset + SCSI Index = 255 + 255 = 511

LUN = LUN Offset + ((Target ID)x8) + LUN Value

LUN = 128 + (8x8) + 5 = 197

Understand Device Numbering

When the driver is configured, there are various configuration parameters that rely upon device numbers. This section explains the two levels of device numbering and how they apply to specific configuration parameters.

The first level of device numbering is the driver instance number. This is the number that is displayed in log messages to syslog or the console, for example: *lpfcX*. The *adapCfg.h* configuration parameters that use *lpfcXtY* rely on *X* to be the driver instance number and *Y* to be the FCP target number. This format is used to configure persistent binding. In systems where adapters are moved around or changed, it is possible for the driver instance number to exceed the number of adapters.

The second level of numbering is the SCSI controller number. This number is assigned by the system for each Pseudo HBA driver it detects. It is typically in the special files created to access each SCSI device: for example, */dev/dsk/cZt0d0s2*.

Once these numbers are assigned, they stay the same between reboots if there are no LightPulse hardware changes to the system.

List Adapters

When you start the LightPulse Utility (lputil), all adapters are listed with information such as the host adapter number, instance number (i.e. lpfc0), board model type, whether it is a standard or non-standard device and whether the adapter is ready to use.

From the Main menu, enter 1, List Adapters.

MAIN MENU

1. List Adapters
2. Adapter Information
3. Firmware Maintenance
4. Reset Adapter

0. Exit

Enter choice => 1

View Adapter Information

The LightPulse Utility (lputil) allows you to view information for a selected adapter. Once you start lputil, the Main menu opens:

MAIN MENU

1. List Adapters
2. Adapter Information
3. Firmware Maintenance
4. Reset Adapter

0. Exit

Enter choice => 2

Select choice #2. If you have multiple adapters, a list displays, you select an adapter and the Adapter Information Menu opens. If you have only one adapter, the Adapter Information Menu opens for that adapter.

ADAPTER INFORMATION MENU

1. PCI Configuration Parameters
2. Adapter Revision Levels
3. Wakeup Parameters
4. IEEE Address
5. Loop Map
6. Status and Counters
7. Link Status
8. Configuration Parameters

0. Return to Main Menu

Enter choice =>

PCI Configuration Parameters - Displays parameters from the PCI configuration space on the adapter. Examples of this information include vendor ID, device ID, base addresses, ROM address, header type, subclass and base class.

Adapter Revision Levels - Displays firmware revision levels, including kernel and overlay version information.

Wakeup Parameters - Displays BIOS status and version, as well as SLI (service level interface).

IEEE Address - Displays the adapter board address.

Loop Map - If you are currently using arbitrated loop topology, this menu option displays information about your connected devices, such as AL_PA and D_ID.

Status and Counters - Tracks such activities as link failure, loss synch and elastic overlay.

Configuration Parameters - Displays parameters such as link failure count, loss sync count and timeout.

Update Firmware

Prerequisites

- The driver for HP-UX is installed properly.
- The firmware file has been downloaded to a local drive. Firmware versions differ between adapter versions. Make sure you have downloaded the appropriate firmware for your adapter.
- If you are updating the firmware on a RISC-PA system with an LP9802DC, LP9402DC, LP9002DC, or LP8000DC HBA in HP-UX version 11.11, you must either first install OpenBoot on the HBA, or install a version of firmware that includes boot code (not available in all firmware versions).

Load Firmware

This procedure uses the lputil utility, which is installed with the driver.

Caution If you are installing the driver for HP-UX with a dual channel adapter and update the firmware, you must use a firmware image containing OpenBoot. Use ddc files for the LP8000DC, cdc files for the LP9002DC, and hdc and hfc files for the LP9802DC. Failure to load OpenBoot will make the dual channel adapter unavailable after a system reboot.

1. Start the utility by entering the complete path to lputil. The path in the example reflects the default installation path. If the installation path was modified, adjust the command appropriately.

```
/opt/lpfc/bin/lputil
```

2. From the Main menu, enter 3, Firmware Maintenance.
3. If prompted, choose the HBA that is being updated.
4. Enter 1, Load Firmware Image.
5. Enter the full path to the firmware file.

The new firmware is transferred to flash ROM.

If you are updating the firmware on a dual-channel HBA, repeat steps 3 through 5 to update the firmware on the second port.

Loading Boot Code

If you are using the HP-UX 11.11 operating system with an Emulex LP9802DC, LP9402DC or LP8000DC host bus adapter, you must load the boot code before updating the firmware.

Prerequisites:

- The driver for HP-UX is installed properly.
- You have at least one dual channel adapter.
- The boot code file has been downloaded to a local drive.

This procedure uses the lputil utility, which is installed with the driver.

Caution Failure to load the boot code will make a dual channel adapter unavailable after a system reboot.

Procedure

1. Start the utility by entering the complete path to lputil. The path in the example reflects the default installation path. If the installation path was modified, adjust the command appropriately.

/opt/lpfc/bin/lputil

2. From the Main menu, enter 3, Firmware Maintenance.
3. Enter 1, Load Firmware Image.
4. Enter the full path to the boot code file.

The new boot code is transferred to flash ROM.

Reset the Adapter

The LightPulse Utility (lputil) is loaded automatically when the driver utilities kit is installed and allows you to reset the adapter using lputil. Start lputil (see Introduction for start up instructions).

Once you start the utility, the Main menu is displayed:

```
MAIN MENU

1. List Adapters
2. Adapter Information
3. Firmware Maintenance
4. Reset Adapter

0. Exit

Enter choice => 4
```

Select 4, Reset Adapter. Resetting the adapter runs self tests and reestablishes links (causes discovery of devices). Once the adapter has successfully reset, the Main Menu is displayed.

If you have multiple adapters, a list is displayed and you can select the adapter you want to reset.

Caution Do not reset your adapter while copying or writing files. This could result in data loss or corruption. We recommend contacting Emulex Technical Support before resetting your adapter.

Download PCI Configuration

Note Select this option **only** if you are familiar with PCI configuration registers.

To download PCI Configuration follow these steps. From the lputil Main menu:

1. Select 3, Firmware Maintenance.

The Firmware Maintenance menu is displayed.

```
FIRMWARE MAINTENANCE MENU

1. Load Firmware Image
2. Display AWC File Contents
3. Display Flash Load List
4. Display RAM Load List
5. Load PCI Configuration File
6. Disable Boot Bios

0. Return to Main Menu
Enter choice =>
```

2. Select 5, Load PCI Configuration File. PCI configuration data is contained in .cfl files, which can be used across any supported platform.
3. Enter the region in Flash ROM to download the data, and press <Enter>.

You can download one of three data sets for the PCI configuration registers.

- Default PCI Configuration Region
 - PCI Configuration Region 1
 - PCI Configuration Region 2
4. Upon completion, press 0 to return to Main menu.
 5. Press 0 to exit the utility.
 6. Power down the system.
 7. Restart system to load new configuration data.



Emulex Driver for HP-UX Troubleshooting Manual

Version 4.20.04

Table of Contents

- [Introduction](#)
- [HBA Not Available After A Firmware Update](#)
- [Error Codes Table](#)

Introduction

There are several circumstances in which your system may operate in an unexpected manner. The Troubleshooting manual explains many of these circumstances and offers one or more workarounds for each situation.

HBA Not Available After A Firmware Update

Situation:

On HP-UX 11.11 systems, if firmware is updated on a dual channel HBA without including boot bios that HBA is no longer available when the system is rebooted.

Resolution

Remove the HBA from the system, install it in a different type of system, obtain the driver/utility for that system and add the boot bios.

Error Codes Table

Error/warning messages are logged only into `/var/adm/syslog/syslog.log` file. Some messages are recorded only if the `log-verbose` configuration parameter is turned on. With the `verbose` parameter, you can set a bit mask to record specific types of verbose messages:

0x1	ELS events
0x2	Device Discovery events
0x4	Mailbox Command events
0x8	Misc events
0x10	Link Attention events
0x20	IP events
0x40	FCP events
0x80	Node table events

The following section describes each error/warning message and indicates any user actions needed. In addition, the message status (ERROR, WARNING, PANIC) and driver source code location are also given.

Error messages are of the format:

LpfcN: **Num** : **Message** Data: **Variables**

Where **N** is the interface number

Num is a unique 3 digit error code

Message is the error message

Variables are four message-dependent data variables

Platform Independent errors - 001 to 099

lpfcN: 1 : Stray ELS completion

Received an ELS command completion without issuing a corresponding ELS command (based on the IOTAG field in the CMD_ELS_REQUEST_CR IOCB). The IOCB command and IOTAG are used to match are recorded.

ACTION: This error could indicate a software driver or firmware problem. If the problems persist, report these errors to technical support.

ERROR always fcelsb.c

lpfcN: 2 : ELS [command response] completion error

An ELS command completed with a status error in the IOCB. The IOCB command, IOCB status, IOCB parameter error, as well as the PortID this ELS command was directed to are recorded. This is only a warning. It could mean

- The Fibre Channel device on the network is not responding.
- The Fibre Channel device is not an FCP target.

The Fibre Channel driver will automatically retry this ELS command if needed.

ACTION: If the ELS command is a PLOGI or PRLI, and the destination PortID is not an FCP target, no action is needed. Otherwise, check the physical connections to the Fibre Channel network and the state of the remote PortID.

WARNING ELS verbose fcelsb.c

lpfcN: 3 : Device Discovery completion error

This indicates that an uncorrectable error was encountered during device (re) discovery after a link up. Fibre Channel devices will not be accessible if this message is displayed. The location within the driver is recorded.

ACTION: Reboot the system. If the problem persists, contact technical support. Run with verbose mode on for more details.

ERROR always fcelsb.c

lpfcN: 4 : Device Discovery completes

This indicates successful completion of device (re)discovery after a link up. The location within the driver is recorded.

ACTION: None needed.

WARNING DISCOVERY verbose fcelsb.c

lpfcN: 5 : Unknown ELS [command response IOCB]

An ELS command, ELS response, or ELS ring IOCB are not supported or have an illegal value.

The illegal/unknown value is recorded.

ACTION: This error could indicate a software driver or firmware problem. If the problems persist, report these errors to technical support.

ERROR always fcelsb.c

lpfcN: 6 : FARP-[REQ RSP] received

A FARP ELS command was received from a fabric. The command originator's PortID is recorded.

ACTION: None needed.

WARNING IP verbose fcelsb.c

lpfcN: 7 : FLOGI completes successfully

A fabric login completed successfully. The assigned PortID, RATOV and EDTOV are recorded.

ACTION: None needed.

WARNING DISCOVERY verbose fcelsb.c

lpfcN: 8 : PRLI completes successfully

A PRLI to a FCP target completed successfully. Target PortID and FCP SCSI ID (PAN, SID) are recorded.

ACTION: None needed.

WARNING FCP / DISCOVERY verbose fcelsb.c

lpfcN: 9 : FAN received

A FAN ELS command was received from a fabric. The assigned PortID and internal driver state are recorded.

ACTION: None needed.

WARNING DISCOVERY verbose fcelsb.c

lpfcN: 10 : RSCN received

A RSCN ELS command was received from a fabric. The internal driver state and size of the RSCN payload is recorded.

ACTION: None needed.

WARNING DISCOVERY verbose fcelsb.c

lpfcN: 11 : Unknown Identifier in RSCN payload

Typically the identifier in the RSCN payload specifies a domain, area or a specific NportID. If none of these are specified, a warning will be recorded. The value of the illegal identifier will be recorded.

ACTION: Potential problem with the fabric. Check with the fabric vendor.

WARNING always fcelsb.c

lpfcN: 12 : ELS Retry failed

If an ELS command fails, it may be retried up to 3 times. This message will be recorded if the driver gives up retrying a specific ELS command. The value of the ELS command and the remote PortID will be recorded.

ACTION: If the ELS command is a PRLI, and the destination PortID is not an FCP target, no action is needed. Otherwise, check physical connections to the Fibre Channel network and the state the remote PortID is in.

WARNING ELS verbose fcelsb.c

lpfcN: 13 : Service Level Interface selected

Either a CONFIG_PORT (SLI2) or PART_SLIM (SLI1) mailbox command was issued. The SLI selected, 1 or 2, and the virtual address of the SLIM will be recorded.

ACTION: None needed.

WARNING MISC verbose fcmboxb.c

lpfcN: 14 : Memory Buffer Pool is below low water mark

A driver memory buffer pool is low on buffers. The buffer pool number and low water mark are recorded.

ACTION: None needed.

WARNING MISC verbose fcmemb.c

lpfcN: 15 : Memory Buffer Pool is out of buffers

A driver memory buffer pool is exhausted. The buffer pool number is recorded.

ACTION: Configure more resources for that buffer pool. If the problems persist, report these errors to technical support.

ERROR always fcmemb.c

lpfcN: 16 : Cannot find virtual address for mapped buffer

The driver cannot find the specified buffer in its mapping table. Thus it cannot find the virtual address needed to access the data. The mapped buffer address and ring number are recorded.

ACTION: If the problems persist, report these errors to technical support.

ERROR always fcmemb.c

lpfcN: 17 : Ran out of Node Table entries

The driver maintains a node table with one entry for every device it needs to communicate with on the Fibre Channel network. The number of table entries and the PortID for the device that failed are recorded. This message will be a warning/verbose if the driver can free up some unused node table entries.

ACTION: Reduce the number of devices in your Fibre Channel network. If the problems persist, report these errors to technical support.

ERROR always fcrpib.c

lpfcN: 18 : Device Discovery Started

Device discovery/rediscovery after FLOGI or FAN has started. The location within the driver is recorded.

ACTION: None needed.

WARNING DISCOVERY verbose fcrpib.c

lpfcN: 19 : Stray FCP Completion

Received an FCP command completion without issuing a corresponding FCP command (based on the iotag field in the FCP IOCB). The IOCB command, IOCB status, IOCB parameter and iotag used to match are recorded.

ACTION: This error could indicate a software driver or firmware problem. If the problems persist, report these errors to technical support.

ERROR always fcscsib.c

lpfcN: 20 : FCP completion error

An FCP command completed with a status error in the IOCB. The IOCB status, the IOCB parameter error, as well as the PortID this FCP command was directed to are recorded.

ACTION: If there are many errors to one device, check the physical connections to Fibre Channel network and the state of the remote PortID.

ERROR always fcscsib.c

lpfcN: 21 : Rcv Ring: out of posted buffers

If the ring number is 1 (IP ring) this usually means the system is out of TCP/IP buffers. The ring number and missed buffer count are recorded

ACTION: Try allocating more IP buffers (STREAMS buffers or mbufs) of size 4096 and/or increasing the post-ip-buf configuration parameter. Reboot the system.

ERROR IP verbose fcscsib.c

lpfcN: 22 : NameServer Rsp buffer allocation failed

A name server response was received and a buffer is needed to put it in. This usually means the system is out of TCP/IP buffers.

ACTION: Try allocating more IP buffers (STREAMS buffers or mbufs) of size 4096 and/or reboot the system.

ERROR always fcscsib.c

lpfcN: 23 : Post buffer for IP ring fails

The driver cannot post a buffer to the IP ring. This usually means the system is out of TCP/IP buffers. The missed buffer count is recorded.

ACTION: Try allocating more IP buffers (STREAMS buffers or mbufs) of size 4096 and/or reboot the system.

ERROR always fcscsib.c

lpfcN: 24 : Command ring timeout

An IOCB command was posted to a ring and did not complete within a timeout based on R_A_TOV. The ring number and the IOCB command are recorded.

ACTION: This error could indicate a software driver or firmware problem. If no I/O is going through the adapter, reboot the system. If these problems persist, report the errors to technical support.

ERROR always fcscsib.c

lpfcN: 25 : Mailbox command timeout

A mailbox command was posted to the adapter and did not complete within 30 seconds. The mailbox command and status are recorded.

ACTION: This error could indicate a software driver or firmware problem. If no I/O is going through the adapter, reboot the system. If these problems persist, report the errors to technical support.

ERROR always fcscsib.c

lpfcN: 26 : FAN timeout

A link up event was received without the login bit set, so the driver waits E_D_TOV for the fabric to send a FAN. If no FAN is received, a FLOGI will be sent after the timeout.

ACTION: None needed. The driver recovers from this with a FLOGI to the fabric.

WARNING always fcscsib.c

lpfcN: 27 : NameServer Registration timeout

Our registration request to the fabric is not acknowledged within R_A_TOV.

ACTION: Check the fabric configuration. The driver recovers from this and continues with device discovery.

WARNING always fcscsib.c

lpfcN: 28 : Nameserver Query timeout

Node Authentication timeout

Node Discovery timeout

A name server query to the fabric or discovery of reported remote NPorts is not acknowledged within R_A_TOV.

ACTION: Check the fabric configuration. The driver recovers from this and continues with device discovery.

WARNING always fcscsib.c

lpfcN: 29 : pt2pt timeout

A PLOGI has not been received within R_A_TOV, after a successful FLOGI, which indicates that the topology is point-to-point with another NPort. Typically this PLOGI is used to assign a NPortID.

ACTION: None needed, driver will recover by configuring the NPortID as 0.

WARNING always fcscsib.c

lpfcN: 30 : SCSI timeout

An FCP IOCB command was posted to a ring and did not complete within ULP timeout seconds. The IOCB command, NPortID and SCSI ID are recorded.

ACTION: If no I/O is going through the adapter, reboot the system; otherwise check the state of the target in question.

WARNING FCP verbose fcscsib.c

lpfcN: 31 : Link [Up Down] Event received [ALPAmapping]

Either a link up or link down link event is received. It is also possible for multiple link events to be received together. If this happens the current event number, last event number received, AL_PA granted, and number of entries in the loop init LILP AL_PA map are recorded. For a link up, an AL_PA map message is also recorded if LINK_EVENT verbose mode is set. Each AL_PA map message contains 16 ALPAs.

ACTION: If numerous link events are happening, check the physical connections to Fibre Channel network.

WARNING always / LINK_EVENT fcscsib.c

lpfcN: 32 : Unknown Mailbox completion

An unsupported or illegal mailbox command completed. The unknown value is recorded.

ACTION: This error could indicate a software driver or firmware problem. If the problems persist, report these errors to technical support.

ERROR always fcscsib.c

lpfcN: 33 : SCSI Link reset

The SCSI layer has determined that the link needs to be reset. A LIP is sent to restart loop initialization.

ACTION: None needed.

WARNING always fcscsib.c

lpfcN: 34 : Bring Adapter online

The driver has received a request to bring the adapter online. This may happen when running the LightPulse Utility (lputil).

ACTION: None needed.

WARNING always fcscsib.c

lpfcN: 35 : Bring adapter offline

The driver has received a request to bring the adapter offline. This may happen when running lputil.

ACTION: None needed.

WARNING always fcscsib.c

lpfcN: 36 : Abort Target I/O: clearq

This is displayed if the driver internally detects that it needs to abort all I/O to a specific device. This results in a Fibre Channel ABTS to abort the I/O in process. The target N_Port ID, SCSI ID and LUN are recorded.

ACTION: Check the state of the target in question.

WARNING FCP verbose fcscsib.c

lpfcN: 37 : Abort Target I/O: issue_abort

This is displayed if the SCSI layer detects that it needs to abort all I/O to a specific device. This results in an FCP Task Management command to abort the I/O in progress. The target N_Port ID, SCSI ID and LUN are recorded.

ACTION: Check the state of the target in question.

WARNING always fcstratb.c

lpfcN: 38 : FCP command failed

A target has sent an FCP RSP error. Because of the amount of information that needs to be recorded, two back-to-back messages are generated. The first records the IOCB information, the IOCB cmd, IOTAG, status and parameter error field. The second records FCP information, N_Port ID, SCSI ID, LUN and FCP response status bytes.

ACTION: Check the state of the target in question.

WARNING FCP verbose fcscsib.c

lpfcN: 39 : Cannot issue FCP command

A valid login with a target no longer exists. The target NPortID, SCSI ID and LUN are recorded.

ACTION: Check the state of the target in question.

WARNING always fcstratb.c

lpfcN: 40 : No room on IP xmit queue

The system is generating IOCB commands to be processed faster than the adapter can process them.

ACTION: Check the state of the link. If the link is up and running, reconfigure the xmit queue size to be larger. Note, a larger queue size may require more system IP buffers. If the link is down, check physical connections to the Fibre Channel network.

WARNING IP verbose fcxmitb.c

lpfcN: 41 : Stray XmitSequence completion

Received an XMIT_SEQUENCE IOCB completion without issuing a corresponding XMIT_SEQUENCE command (based on the IOTAG field in the XMIT_SEQUENCE_CR IOCB). The IOCB command and IOTAG used to match are recorded.

ACTION: This error could indicate a software driver or firmware problem. If the problems persist, report these errors to technical support.

ERROR always fcxmitb.c

lpfcN: 42 : Xmit sequence completion error

A XMIT_SEQUENCE command completed with a status error in the IOCB. The IOCB status, the IOCB IOTAG, the IOCB parameter error, as well as the PortID this command was directed to are recorded. The driver attempts to recover by creating a new exchange to the remote device.

ACTION: If there are many errors on one device, check the physical connections to the Fibre Channel network and the state of the remote PortID.

WARNING IP verbose fcxmitb.c

lpfcN: 43 : Stray CreateXRI completion

Received a CREATE_XRI command completion without issuing a corresponding CREATE_XRI command (based on the IOTAG field in the CREATE_XRI_CR IOCB). The IOCB command and IOTAG used to match are recorded.

ACTION: This error could indicate a software driver or firmware problem. If the problems persist, report these errors to technical support.

ERROR always fcxmitb.c

lpfcN: 44 : Adapter failed to initialize

The host adapter failed to initialize properly. The status register is recorded.

ACTION: This error usually indicates a hardware problem with the adapter, run diagnostics.

ERROR always lp6000.c

lpfcN: 45 : Adapter initialization failed, Mailbox command

The host adapter failed to initialize properly because a mailbox command failed. The mailbox command and mailbox status value are recorded.

ACTION: This error usually indicates a hardware problem with the adapter, run diagnostics.

ERROR always lp6000.c

lpfcN: 46 : RUN_BIU_DIAG failed

The host adapter failed to initialize properly because a PCI bus DMA test failed.

ACTION: This error usually indicates a hardware problem with the adapter, run diagnostics.

ERROR always lp6000.c

lpfcN: 47 : WorldWide PortName doesn't conform to IP Profile

In order to run IP, the WorldWide PortName must be of type IEEE (NAA = 1). This message is display if the adapter WWPN doesn't conform to the standard. The NAA is recorded.

ACTION: Turn off the network-on configuration parameter or have a different WWPN assigned.

ERROR always lp6000.c

lpfcN: 48 : Enable interrupt handler failed

This error occurs if the driver cannot assign an interrupt vector to the host adapter.

ACTION: Check the configuration of the adapter in the system.

ERROR always lp6000.c

lpfcN: 49 : Adapter Hardware Error

A FireFly error interrupt occurred and the status register indicates a non-recoverable error. The adapter status register is recorded.

ACTION: This error usually indicates a hardware problem with the adapter, run diagnostics.

ERROR always lp6000.c

lpfcN: 50 : Stray Mailbox Interrupt

Received a mailbox command completion and the mailbox is not owned by the host. The mailbox command and status are recorded.

ACTION: This error could indicate a software driver or firmware problem. If the problems persist, report these errors to technical support.

ERROR always lp6000.c

lpfcN: 51 : [29,xx] Check condition received

Could indicate a problem with an FCP target. The check condition response info fields are recorded. A 29,xx check condition is recorded only in verbose mode.

ACTION: Check the state of the FCP target

ERROR always lp6000.c

lpfcN: 52 : [Xmit Received] ELS [command response]

Could indicate a problem with an FCP target. The check condition response info fields are recorded. A 29,xx check condition is only recorded in verbose mode.

ACTION: No action needed.

WARNING ELS verbose fcelsb.c

HP-UX specific errors

General HP-UX error codes range from 100 to 109. HP-UX FCP specific error codes range from 120 to 139.

lpfcN: 100 : Attach failure: XXXXX

The driver attach routine failed for reason XXXXX. The assigned DIP and attach routine cmd are recorded.

ACTION: This error could indicate a software driver or firmware problem. If the problems persist, report these errors to technical support.

ERROR always fcHPUX.c

lpfcN: 101 : Detach failure: XXXXX

The driver detach routine failed for reason XXXXX. The assigned DIP and attach routine cmd are recorded.

ACTION: This error could indicate a software driver or firmware problem. If the problems persist, report these errors to technical support.

ERROR always fcHPUX.c

lpfcN: 102 : Config error: XXXXX

Parameter XXXXX in the driver conf file has a bad value. The bad value and new value are recorded.

ACTION: Check the driver .conf file, usually located in /opt/lpfc/conf/adapCfg.h

ERROR always fcHPUX.c

lpfcN: 103 : fc_malloc: XXXXX

The driver memory allocation routine failed for reason XXXXX. Various memory allocation parameters are recorded.

ACTION: This error could indicate a software driver or firmware problem. If the problems persist report, these errors to technical support.

ERROR always fcHPUX.c

lpfcN: 104 : fc_bufmap: XXXXX

The driver memory mapping routine failed for reason XXXXX. Various memory mapping parameters are recorded.

ACTION: This error could indicate a software driver or firmware problem. If the problems persist, report these errors to technical support.

ERROR always fcHPUX.c

lpfcN: 121 Override default targetX SCSI options

The message indicates that the default SCSI options for target X have been overridden. The SCSI ID, new SCSI option, and default SCSI option is recorded.

ACTION: No action needed.

WARNING FCP verbose fcHPUX.c

lpfcN: 122 Override default SCSI tag age limit

The default SCSI tag age limit has been overridden. The new tag age and default tag age are recorded.

ACTION: No action needed.

WARNING FCP verbose fcHPUX.c

lpfcN: 123 Override default SCSI reset delay

The default SCSI reset delay has been overridden. The new reset delay and default reset delay are recorded.

ACTION: No action needed.

WARNING FCP verbose fcHPUX.c

lpfcN: 124 Exceeded max s/g size

The scatter/gather elements received by the driver exceeded the number (64) it can handle. The SCSI ID, LUN, the number of elements supported and number of elements received from the upper layer are recorded.

ACTION: This error could indicate an HP-UX problem. To workaround it, you can issue smaller I/Os, or install more memory. If the problems persist, report these errors to technical support.

ERROR always fcHPUX.c

lpfcN: 125 DMA allocation error

Indicates an error for allocating a DMA memory. The MALLOC status error is recorded.

ACTION: This error could indicate a software driver or firmware problem. If the problems persist, report these errors to technical support.

ERROR always fcHPUX.c

lpfcN: 128 Invalid FCP Response Code received

An invalid FCP response code has been received. The SCSI ID, LUN and FCP task mgmt response status (rspinfo3) are recorded.

ACTION: This error could indicate a software driver or target problem. If the problems persist, report these errors to technical support.

ERROR always fcHPUX.c

lpfcN: 129 FCP Read Check Error

The adapter detects corrupted and missing frames, which happen only when an entire sequence is dropped. The IOCB cmd, FCP response SCSI status (rspinfo2) and FCP task mgmt response status (rspinfo3) are recorded.

ACTION: Check the link connection to the target.

WARNING FCP verbose fcHPUX.c

lpfcN: 130 SCSI Auto Sense is not enabled

The target driver can either issue a SCSI Request Sense command when the error occurred or enable the AutoSense capability through the driver interface routine. The SCSI ID and LUN are recorded.

ACTION: No action needed.

WARNING FCP verbose fcHPUX.c

lpfcN: 131 Can't copy ARQ data, size mismatch

The SCSI ARQ status buffer is greater than the SCB length. The SCSI ID, LUN, SCB length and length of the buffer are recorded.

ACTION: This error could indicate a software driver or firmware problem. If the problems persist, report these errors to technical support.

ERROR always fcHPUX.c